

ALIGNMENTS							
Database :	N_Geneseq_1.01002:*						
	1: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1980.DAT:*						
	2: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1981.DAT:*						
	3: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1982.DAT:*						
	4: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1983.DAT:*						
	5: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1984.DAT:*						
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	8: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1987.DAT:*						
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	10: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1989.DAT:*						
	11: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1990.DAT:*						
	12: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1991.DAT:*						
	13: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1992.DAT:*						
	14: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1993.DAT:*						
	15: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1994.DAT:*						
	16: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1995.DAT:*						
	17: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1996.DAT:*						
	18: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1997.DAT:*						
	19: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1998.DAT:*						
	20: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA1999.DAT:*						
	21: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA2000.DAT:*						
	22: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA2001.DAT:*						
	23: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA2001B.DAT:*						
	24: /SIDS2/gcgdata/geneseq/geneseq/geneseq-emb1/NA2002.DAT:*						
Pred. No.	is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.*						
SUMMARIES							
Result No.	Score	Query Match Length	DB ID	Description			
1	1404	100.0	1404	21 AAA97040	55kD i-antigen syn	PR 04-FEB-2000: 2000WO-US02962.	XX
2	1404	100.0	1410	21 AAA97085	Synthetic I Multi	PR 04-FEB-1999: 99US-0118634.	XX
3	1400.8	99.8	1404	21 AAA97048	Synthetic 55kD i-a	PR 02-MAR-1999: 99US-0122372.	XX
5	782.6	55.7	1404	21 AAA5236	55kD i-antigen nuc	PR 17-MAR-1999: 99US-0124905.	XX
6	782.6	55.7	1410	21 AAA97060	55 kDa i-antigen g	PR 27-APR-1999: 99US-0131121.	XX
c 7	138	9.8	138	21 AAA97075	55kD i-antigen cod	PA (UYGE-) UNIV GEORGIA RES FOUND INC.	PA
c 8	123	8.8	123	21 AAA97076	G5 synthetic gene	PA (CLAR-) CLARK T G.	PA
c 9	105	7.5	117	21 AAA97071	G5 synthetic gene	PA (DICK-) DICKERSON H W.	PA
					G5 synthetic gene	(LINT-) LIN T.	

Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds;
white spot disease; freshwater fish; immune response; infection control
Ichthyophthirius multifiliis. Synthetic.

WO20046373-A1.
10-AUG-2000.
04-FEB-2000; 2000WO-US02962.
04-FEB-1999; 99US-0118634.
02-MAR-1999; 99US-0122372.
17-MAR-1999; 99US-0124905.
27-APR-1999; 99US-0131121.

(UYGE-) UNITV GEORGIA RES FOUND INC.
(CORR) CORNELL RES FOUND INC.
(CLAR) CLARK T G.
(DICK) DICKERSON H W.
(LINT) LIN T.

Clark TG, Dickerson HW, Lin T;
WPI; 2000-506071/45.

Novel i-antigen polypeptides and polynucleotides from *Ichthyophthirius multifiliis*, useful for prophylaxis and treatment of *Ichthyophthirius infection in fish*.

Example 5; Figure 2b, 144pp; English.

This invention relates to novel i-antigen polypeptide sequences. I-antigens or immobilisation antigens are common to a variety of environmental stimuli and their expression varies in response to *Ichthyophthirius multifiliis*. This invention relates to i-antigens in freshwater fish causing ichthyophthiriasis, a protozoan which is an obligate parasite of fish. The invention includes two polypeptide and polynucleotide sequences for two i-antigens, of 48 and 55 kd. Also included in the invention are antibodies capable of binding to the nucleotide sequences and a method for identifying *I. multifiliis* serotypes using the nucleotide sequences. A composition (containing the i-antigen nucleotide) capable of eliciting an immune response in fish is useful for prophylaxis, treatment or for controlling *I. multifiliis* infection in fish. Polynucleotide or protein vaccines comprising a portion of the amplified product encoding an antigenic i-antigen polypeptide obtained is also useful for treating or preventing *I. multifiliis* infection in fish. Sequences AAA97036-A97042, and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene fragments identified in the invention. Sequences AAA9704-A97064 (excluding AAA97060) and AAA97071-A97078 represent primers used in the isolation of the i-antigen gene sequences. Sequences AAB25659-B25889 and AAB23893-B25906 represent i-antigen protein and peptide sequences.

Query Match sequence 1410 BP; 321 A; 418 C; 339 G; 332 T; 0 other; score 1400; DB 21; % match 100.0%

Db	1261	GAAATGACACCTGAACTCTTGTAACAGAAGTGAACCTCGGAGTCGGCTAACCTG	1320	CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX	1321	CTGAGTCCTGTAAGAGACATCCAGCTGTGACTTCGCTAACTTCCGTCTCTG	1380	Sequence 1404 BP; 317 A; 418 C; 339 G; 330 T; 0 other;
Qy	1321	CTGAGTCCTGTAAGAGACATCCAGCTGTGACTTCGCTAACTTCCGTCTCTG	1380	Query Match 99.8%; Score 1400.8%; DB 21; Length 1404;
Db	1381	CTGCTGATCTCTTACTACCTCTGT	1404	Best Local Similarity 99.9%; Pred. No. 0;
Qy	1381	CTGCTGATCTCTTACTACCTCTGT	1404	Matches 1402; Conservative 0; Mismatches 2; Indels 0; caps 0;
Db	1381	CTGCTGATCTCTTACTACCTCTGT	1404	Qy 1 ATGAGAACACACATCTGTGATCATCTCTGTGTCATCAAACAGATAAGTC
RESULT 3				60
AAA97065				Qy 61 GCTAACTGTCTGGAAACCGAGAACACCTGACAGTGGAGACCTGGAAAC
ID				120
XX				Db 61 GCTAACTGTCTGGAAACCGAGAACACCTGACAGTGGAGACCTGGAAAC
AC				120
XX				Qy 121 CCTGCTAACTGTGTAACCTGTAGAGAACTTCACTAAACAGCTGCTG
DT	18-DEC-2000	(first entry)		180
XX				Db 121 CCTGCTAACTGTGTAACCTGTAGAGAACTTCACTAAACAGCTGCTG
DE				180
XX				Qy 181 CCTGGAGCTCTACCTGTACCCCTGTGTCCTCAGAGAAAGGACGCTGGACTGCTAAC
KW				240
Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds; white spot disease; freshwater fish; immune response; infection control.				Db 181 CCTGGAGCTCTACCTGTACCCCTGTGTCCTCAGAGAAAGGACGCTGGACTGCTAAC
KW				240
XX				Qy 241 CCTCCCTGCTACCGCTAACCTGTGACCCACTGTACCTGGTACCGCTAAC
OS				300
Ichthyophthirius multifiliis.				Db 241 CCTCCCTGCTACCGCTAACCTGTGACCCACTGTACCTGGTACCGCTAAC
OS				Qy 301 ATCGCTGGAGGTACCGACTACCGTGTACCTGTTACCATCGTGGCTAAC
Synthetic.				360
XX				Db 301 ATCGCTGGAGGTACCGACTACCGTGTACCTGTTACCATCGTGGCTAAC
PN	WO20046373-A1.			360
XX				Qy 361 AACTTCTACAACGAGANGMCCTTAACCTAACGCTGTTACCGCTAAC
PD	10-AUG-2000.			420
XX				Db 361 AACTTCTACAACGAGANGMCCTTAACCTAACGCTGTTACCGCTAAC
PF	04-FEB-2000;	2000WHO-US02962.		420
XX				Qy 421 CCNGTGACCGCCGGGGAGCTCTGACCCCTGTGAAACCCCTGTGACCTGCTAAC
PR	04-FEB-1999;	99US-0118634.		480
PR	02-FEB-1999;	99US-0122374.		Db 421 CCNGTGACCGCCGGGGAGCTCTGACCCCTGTGAAACCCCTGTGACCTGCTAAC
PR	17-MAR-1999;	99US-0124905.		480
PR	17-MAR-1999;	99US-0131121.		Qy 481 TGTAAACCTGGCTGTCCTACCGGAACCGCTCTGGACGAGGTGACCCGACTACGTG
PR	27-APR-1999;	99US-0131121.		540
XX				Db 481 TGTAAACCTGGCTGTCCTACCGGAACCGCTCTGGACGAGGTGACCCGACTACGTG
PA	(UYGE-) UNIV GEORGIA RES FOUND INC.			540
PA	(CORR.) CORNELL RES FOUND INC.			Db 481 TGTAAACCTGGCTGTCCTACCGGAACCGCTCTGGACGAGGTGACCCGACTACGTG
PA	(CLAR.) CLARK T. G.			540
PA	(DICK.) DICKERSON H. W.			Db 481 TGTAAACCTGGCTGTCCTACCGGAACCGCTCTGGACGAGGTGACCCGACTACGTG
PA	(LINT.) LIN T.			540
XX				Qy 541 CGCTCTTTCACCCAGTGCTGAGTGTGAGTGTGAGTCAGCTGCTAAC
P1	Clark TG,	Dickerson HW,	Lin T;	600
XX				Db 541 CGCTCTTTCACCCAGTGCTGAGTGTGAGTCAGCTGCTAAC
DR	WPI:	2000-506071/45.		600
XX				Qy 601 AACACCCCTTCAACCCCTGAAACCGCTAACCTAACGCTGCTAAC
Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius				660
multifiliis, useful for prophylaxis and treatment of Ichthyophthirius				Db 601 AACACCCCTTCAACCCCTGAAACCGCTAACCTAACGCTGCTAAC
infection in fish -				660
PT				Qy 661 AACGNGGCCTGGGTACCGCTAACCTAACGCTAACCTAACGCTAAC
XX				720
PS	Example 5; Figure 13; 14app; English.			Db 661 AACGNGGCCTGGGTACCGCTAACCTAACGCTAACCTAACGCTAAC
XX				720
This invention relates to novel i-antigen polypeptide sequences.				Qy 721 TGCTCTGAGCTGAACTCATCTGCTGCTGAGTGTGAGTCAGCTGCTAAC
i-antigens or immobilisation antigens are common to a variety of				780
hymenostomatid ciliates and their expression varies in response to				CC environmental stimuli. This invention relates to i-antigens in
Ichthyophthirius multifiliis, a protozoan which is an obligate parasite				CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
invention includes two polypeptide and polynucleotide sequences for two				CC 1-antigens, of 48 and 55 kD. Also included in the invention are
i-antigens, of 48 and 55 kD. Also included in the invention are				CC antibodies capable of binding to the nucleotide sequences and a method
for identifying I. multifiliis serotypes using the nucleotide sequences.				CC for identifying I. multifiliis serotypes using the nucleotide sequences.
A composition (containing the i-antigen nucleotide) capable of eliciting				CC an immune response in fish is useful for prophylaxis, treatment or for
controlling I. multifiliis infection in fish. Polynucleotide or protein				CC vaccines comprising a portion of the amplified product encoding an
anticigenic polypeptide obtained is also useful for treating or				CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene				CC fragments identified in the invention. Sequences AAA97043-A97064

Qy	961	GGAGCTTACCAACTACGTGATCCTCGACGCCGASTGTCGAACTTGCTGCTAACCTCTAC	1024
Db	961	GGAGCTTACCAACTACGTGATCCTCGACGCCGASTGTCGAACTTGCTGCTAACCTCTAC	1024
Qy	1021	TTCGACGGAAACAATTCTCAGGTTGGACCTTCAGCTGGTAAGCTTGCCMGTAAACAAAG	1088
Db	1021	TTCGACGGAAACAATTCTCAGGTTGGACCTTCAGCTGGTAAGCTTGCCMGTAAACAAAG	1088
Qy	1081	GTGCAGGGACCTGTTGGCTACCGTGGAGGAACCGTACCCCTGATGGTCAGTGCTCTCG	1140
Db	1081	GTGCAGGGACCTGTTGGCTACCGTGGAGGAACCGTACCCCTGATGGTCAGTGCTCTCG	1140
Qy	1141	GAGGTCCMGTGGAAACCCTGCTGGACCGGAAACCCCTAACCTAACGAGGCTGGCT	1200
Db	1141	GAGGTCCMGTGGAAACCCTGCTGGACCGGAAACCCCTAACCTAACGAGGCTGGCT	1200
Qy	1201	TCTGAGTGTGTGAAGTGTGCTGTAACCTCTAACCCACCGAACCGTACCCCTGATGGT	1260
Db	1201	TCTGAGTGTGTGAAGTGTGCTGTAACCTCTAACCCACCGAACCGTACCCCTGATGGT	1260
Qy	1261	GGATATCGACACCTGTACCTCTGTAAAGAGCTGACCTCTGAGGTAAACCTTG	1320
Db	1261	GGATATCGACACCTGTACCTCTGTAAAGAGCTGACCTCTGAGGTAAACCTTG	1320
Qy	1321	CCTTAGTGTGTGCTAAGAAACATCACTGTGACTCTGCTAACCTCTGCTATCTCTCG	1380
Db	1321	CCTTAGTGTGTGCTAAGAAACATCACTGTGACTCTGCTAACCTCTGCTATCTCTCG	1380
Qy	1381	CTGGTGTCTCTCTACTACCTGTGCTAAAGAGCTGACCTCTGAGGTAAACCTTG	1404
Db	1381	CTGGTGTCTCTCTACTACCTGTGCTAAAGAGCTGACCTCTGAGGTAAACCTTG	1404
RESULT 4			
	AAA97038	standard; DNA; 1404 bp.	
ID	AAA97038		
AC	XX		
AC	XX		
DT	18-DEC-2000	(first entry)	
DE	55kd i-antigen nucleotide sequence.		
XX			
KW	Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds;		
KW	white spot disease; freshwater fish; immune response; infection control		
XX			
OS	Ichthyophthirius multifiliis.		
XX			
PN	WO200046373-A1.		
XX			
PD	10-AUG-2000.		
PF	04-FEB-2000; 2000WO-US02962.		
XX			
PR	04-FEB-1999; 99US-0118634.		
PR	02-MAR-1999; 99US-0122372.		
PR	17-MAR-1999; 99US-0124905.		
PR	27-APR-1999; 99US-0131121.		
XX			
PA	(UYGE-) UNIV GEORGIA RES FOUND INC.		
PA	(CORR) CORNELL RES FOUND INC.		
PA	(CLAR/) CLARK T. G.		
PA	(DICK/) DICKERSON H. W.		
PA	(LINT/) LIN T.		
XX			
PI	Clark TG, Dickerson HW, Lin T;		
DR	WPI: 2000-506071/45.		
XX			
PT	Novel i-antigen polyptides and polynucleotides from Ichthyophthirius		
PT	multifiliis, useful for prophylaxis and treatment of Ichthyophthirius		
PT	infection in fish -		

XX	Claim 5; Figure 3; 144pp; English.
PS	This invention relates to novel i-antigen polypeptide sequences.
XX	CC T-antigens or immunobilisation antigens are common to a variety of CC heterostomatid ciliates and their expression varies in response to CC environmental stimuli. This invention relates to i-antigens in CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite CC of freshwater fish causing ichthyophthiriasis or white spot disease. The CC invention includes two polypeptide and polynucleotide sequences for two CC i-antigens of 48 and 55 kd. Also included in the invention are CC antibodies capable of binding to the nucleotide sequences and a method CC for identifying I. multifiliis serotypes using the nucleotide sequences. CC A composition (containing the i-antigen nucleotide) capable of eliciting CC an immune response in fish is useful for prophylaxis, treatment or for CC controlling I. multifiliis infection in fish. Polynucleotide or protein CC vaccines comprising a portion of the amplified product encoding an CC antigenic i-antigen polypeptide obtained by sequencing and a method CC preventing I. multifiliis infection in fish. Sequences AAA97063-A97042, CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene CC fragments identified in the invention. Sequences AAA97063-A97064 CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the CC isolation of the i-antigen gene sequences. Sequences AAA25859-B25889 and CC AAA2893-B25906 represent 1-antigen protein and peptide sequences.
XX	Sequence 1404 BP: 447 A: 240 C: 257 G: 460 T: 0 other:
SQ	Query Match 55.7% Score 782.6; DB 21; Length 1404; Best Local Similarity 72.5%; Pred. No. 1, 4e-215; Matches 1013; Conservative 0; Mismatches 394; Indels 0; Gaps 0
Qy	1 ATGAGAACACATCTGGTGAATCATCCTGTTCATCAACCAGATCAAGTC 60 1 ATGAAAATAATATTTTGATAATTGATTATTTCATATTAAATTAAATCT 60
Db	61 GCTAACTGNCCTGTGGAAACCGAGACCAAACCCGGTGACAGGTGGACGCC 120 61 GCTTAATGTCCTGTGGACTAAACTAACAGCGGATAAGTTGATCTAGAACT 120
Qy	121 CCTGCTAACTGCTGAATCTGAGAACACTCTACTACACAACGGTGTGGTTCTGGTGT 180 121 CCTGCAAAATTGTTTATTGTAGAAAAACCTTTATTATATAAATGCTGTGGTACCGCT 180
Db	121 CCTGCTAACTGCTTAATCTGGTGAACCTGACTGTTAGTCAATGTAACGTTAAATGCTGTGGTACCGCT 180
Qy	181 CCTGGAGCTTCTACCCCTGTCTCAGAAAGAACGCTGGAGCTCAGCTTAAC 240 181 CCTGGTGTGATAGCTACGCTTAACCCCTGMCCTATAAAAAGATGCTGGTTACCAAAAT 240
Db	241 CCTCCTGTGATACCGCTAACCTGGTGAACCTGACTGTTAGTCAATGTAACGTTAAATGCTGTGGTACCGCT 300
Qy	241 CCACCTGCTACTGCTTAATTTAGTCATATAAATGCTGTGGTACCGCT 300
Db	301 ATTCCTTACAACGAGAAACGGCTACCGACTACCGTGTCTACCTCACACCGACTGTGTAACTGTGCGCATC 360 301 ATTGAGGTGGACAAAGATTGACAAATTCATGCTGAAATTCATGAAATTTGTAAATTGTGAAATT 360
Qy	361 AACCTCTACAACGAGAAACGGCTCCTAACTTCACCGTGGAGCTTCTACCTGTGAGCTTACTGCTGTGGCTGT 420 361 AATTGTTATAATGAAATGCTCCAATTTTAATGCGGNGCTAGTACATGCGCACAGCTGT 420
Db	421 CCTGTGAACCCGTGGAGGAGCTGTGACCGTGTGGATCTGACTGTGTGTTAATGCGTACCATGTCGATTAAC 480 421 CGGGTAACAGAGTTGGTGTGGATCTGACTGACTGATGTTAGTGGATAACTGATGTTAATGTT 480
Qy	481 TGTAAAGCTGGCTTGTCTACCGAACCCGCTCTGGACAGGAGSTGACCAACGACTACGGT 540 481 TGTAAAGCTGGATGTCCTACTGGTACTGACTGATGTTAGTGGATAACTGATGTTAATGTT 540
Db	541 CGCTCTTCAACCCCTGAAAGTCAGTGTGACAGTCTACTACAGGAAACAGGA 600 541 AGATCATCAGAATGTTAACGTTAACCTTACATATAATGTTAATATGTT 600
Qy	601 AACACCCCTTCAACCCCTGAAAGTCAGTGTGACCCCTGTGCTGCAATCAAGCCCTGCT 660

Qy	121 CCTGGCTAACCTGGAACCTGTCAGAAGAACCTTCTAACACAACCGCTGCTTTCGTG 180	Qy	1201 TCTGAGTGTGTGAAAGTGCTGCTTAACITCTACACCAAGCAGAACCTGTTGGCT 1260
Db	121 CCTGGCTAACCTGTAATGTTAACCTTATATAATATAATGTCGCTTTCGTG 180	Db	1201 TCTGAGTGTGTAAAGTGCTGCACTTTATACATCAAATAACTGTTTAT 1260
Qy	181 CCTGGAGCTCTAACCTCTACCCCTGTCCTCAGAAGGGCTGGAGCTGGCTAAC 240	Qy	1261 GGAATGACACCTGTAACCTCTGTAACAAAGGCTGACCTGAGGCTAACCTG 1320
Db	181 CCTGGCTAACCTGTCACCCCTGTCATAAAAAGATGCTGGCTTAACAAAT 240	Db	1261 GGATGATGATCATGTAATGCTAGTGTATAAAATAACTGTTCTGGCCCTGAGCTAATTAA 1320
Qy	241 CCTCCCTGTPACCGCTAACCTGGTGAACCTGAAGTGTCTGGTGAACCGCT 300	Qy	1321 CCGTAGTCGCTAAGAGAACATCCAGTGTGACTTCCGTAACCTCCCTCTG 1380
Db	241 CCACCTGCTACTGCTAACATTAGCTACATATGTAACCTTAATGCCCCTGCTGACCGCA 300	Db	1321 CCTGATATCGCTAAAATAATATATATGCTATTGCTTAATTTTATCAATTCTCTA 1380
Qy	301 ATCGTGGAGGAGTACCGACTGCTCATCACAGTGTGAACCTGGCATC 360	Qy	1381 CTGCTGANCTCTACTA 1397
Db	301 ATTGAGTGGAGCAACGATPATGCAAAATACAGATGTAAATTGTAATTGAAATT 360	Db	1381 TTATTGATTCTTATTA 1397
Qy	361 AACPTCTAACACGAGAACGCCCTCAACTCAACGCTGAGGACTACCGCTTG 420	RESULT 6	
Db	361 AATTTTTAATGAAATGCTCCAAATTAAATGCAACAGTGTAAATGCTG 420	ID	AAA97060 standard; DNA; 1410 BP.
Qy	421 CCTGTGAACCGCTGGGACTCTGCCTGACCCGCTGAAACGCTGTCACCATGTCAG 480	XX	AAA97060;
Db	421 CGGTAAACAGAGTTGGCTCATCTGACTGCTGGAATGTCACCATAGTCGCATAA 480	AC	AAA97060;
Qy	481 TGAAACCTGGCTGTCCTACCGAACCCCTGAGGAGCTAACCGACTACCTG 540	XX	XX
Db	481 TGAACCGCTGGCATGTCCTACTGGTACTGCACTTGTGATGGAGTACTGATATGT 540	DT	18-DEC-2000 (first entry)
Qy	541 CGCTCTTCACCGAGTTGTGAGTGTGCTGCTGAACTTCTACTAACCGAAACCGA 600	XX	55KD i-antigen coding region.
Db	541 AGATCATCACAGAAUTGTTAAATGACTTAATGTTACTAATGTAATGCT 600	DE	DE
Qy	601 AACACCCCTTCAACCTGGAAAGACTCTGAAAGTCTGACCCCTGCTGCTCAAGCCTG 660	XX	XX
Db	601 AAATACCTCTTAATCCGTTAACCTGCTGAAAGTTAATGCAACCTGTAACCTGCT 660	PD	10-AUG-2000.
Qy	661 AACGTGCTCACGGCTACCCTGGAAACGAGCCTAACATCACCGCTCAGTGTAACTG 720	XX	PD
Db	661 AAATGTTGCTTAAAGCTTCTGCTGCTGCTGGAGTGAACACTGGTGGCTAAGTGTGCA 720	PF	04-FEB-2000; 2000WO-US02962.
Qy	721 TGCCCTGAAAGGACCATCTCTGCTGGAGTGAACACTGGTGGCTAAGACACCGA 780	XX	PR
Db	721 TGCCCTGATGGTACTATAAGTGTGCTGGAGTAATAATGGTAGAACACACTGA 780	PR	04-FEB-1999; 99US-0118634.
Qy	781 TGACCTAACCTGCTACTCTAACACAAACGCTCTAACCTAACCTGAAAC 840	XX	PR
Db	781 TGACTTAATGCTGCTCTAACCTAACATAATAATGCTCCCTAACCTAACCTGAA 840	PR	02-MAR-1999; 99US-0122272.
Qy	841 TCTACCTGTTGCTGCTGGAGTAAACAGGACTACGGAGCTAGGGCTAACCG 900	XX	PR
Db	841 AGTACATGCCAACCTGCTGCGAACAGTATGGCTGAAGCAGAACACTG 900	XX	27-APR-1999; 99US-0124905.
Qy	901 GCTGTTACCTGCTGCTAACATCGCTAACCTGCTAACATGCTAAC 960	XX	XX
Db	901 GCGCTACTTGTGCTAACCTAACATAATGCTAACCTAACCTGCTAAC 960	XX	XX
Qy	961 GGAGCTAACACTAGGTACCCCTGCGAACAAATAGATATGGCTGAAGCAGT 1020	PI	(UYE-) UNIV GEORGIA RES FOUND INC.
Db	961 GGAGCAACTATTGTAATATAACAGAATGCTAACCTGCTAACCTGGGT 900	XX	(CORR) CORNELL RES FOUND INC.
Qy	1021 TTGACGGAAACAACTCTCCAGGTAACTCGCTAACCTGGCTAAC 1080	XX	(CLAR/) CLARK T G.
Db	1021 TTGATGTTAACATGCTAACCTAACCTAACATGCTAACCTGGCTAAC 1080	XX	(DICK/) DICKERSON H W.
Qy	1081 GTGCAAGGACTGCTGCTGCTGAGGCTAACCTGGCTAACCTGGCTAAC 1140	XX	(CLINT/) CLINT T.
Db	1081 GTTAAGGGCTGCTGCTAACCTGGCTAACCTGGCTAACCTGGCTAAC 1140	XX	XX
Qy	1141 GAGTGTCTGCTGAGAACCTGCTAACCTAACGAGCTAACCTGCTAAC 1200	PS	PS Disclosure: Figure 2; 144pp; English.
Db	1141 GAATGCCCTGGCTGGTACTCTACCGATGGCTAACACATAACTATAACCGCA 1200	XX	DR WPI; 2000-506071/45.

This invention relates to novel i-antigen polypeptide sequences. Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius multifiliis, useful for prophylaxis and treatment of Ichthyophthirius infection in fish. This invention relates to i-antigens in Ichthyophthirius multifiliis, a protozoan which is an obligate parasite of freshwater fish causing ichthyophthiriasis or white spot disease. The invention includes two polypeptide and polynucleotide sequences for two i-antibodies, of 48 and 55 kD. Also included in the invention are antibodies capable of binding to the nucleotide sequences and a method for identifying I. multifiliis serotypes using the nucleotide sequences. A composition (containing the i-antigen nucleotide), capable of eliciting an immune response in fish is useful for prophylaxis, treatment or for controlling I. multifiliis infection in fish. Polynucleotide or protein vaccines comprising a portion of the amplified product encoding an

antigen i-antigen polypeptide obtained is also useful for treating or preventing *I. multifiliis* infection in fish. Sequences AAA97036-A97042, and AAA97065, AAA97065 and AAA97089 represent i-antigen genes and gene fragments identified in the invention. Sequences AAA97043-A97064 (excluding AAA97060) and AAA97071-A97088 represent primers used in the isolation of the i-antigen gene sequences. Sequences AAA25859-B25889 and BBB25859-B25866 represent i-antigen protein and peptide sequences.

antigenic i-antigen polypeptide obtained is also useful for treating or preventing I ₁ multilis infection in fish. Sequences AAA9703-A9704 ₂ , and AAA97065, and AAA97089 represent i-antigen genes and gene fragments identified in the invention. Sequences AAA9704 ₃ -A97064 (excluding AAA97060) and AAA97011-A97088 represent primers used in the isolation of the i antigen gene sequences. Sequences AAB2859-B25889 and AB25893-B25906 represent i-antigen protein and peptide sequences.		
Sequence 1410 BP; 449 A; 240 C; 259 G; 462 T; 0 other;		
Query Match 55.7%; Score 782.6; DB 21; Length 1410;		
Best Local Similarity 72.5%; Pred. No. 1.4e-215;		
Matches 1013; Conservative 0; Mismatches 384; Indels 0; Gaps 0;		
Y 1 ATGAAAGAACATCCUGGTGATCCCTGATCATCTCTGTCAACCCAGATAAGCT 60		
Y 1 ATGAAAAAATATTATTTAGTAAATTGATTAATTCATATTCAATTAATTAATCT 60		
b 61 GCTAACCTGTCCTGTCGGACAGCTGGACAGCTGGAAACCGAGAACCTGGAA 120		
b 61 GCTAAATGTCCTGTCGGACACTAACGGGATAAGTGTAGCTAGAACT 120		
b 121 CCTGCTCATCTGTGACTGTCAGAAGAACTCTACTACACAAAGCTGTGCTG 180		
b 121 CCTGCAATTGTTATTTATGTTAGAAAAACTTTATATAATCTGCTGCTT 180		
b 181 CCTGGAGGCTCTACCTGTACCCCTGTCTCAGAAGAGGAGCTGGAGTCAGCTAAC 240		
b 181 CCTGGCTGCTGACTGTACCTGTACACTGGTACATGGCTCATTAACCAAAT 240		
b 241 CCPCCTGTACCCSTAACTGTGACCAGCTAACTGTAACTGCTGCTGCTG 300		
b 241 CCACCTGTACTGTACATTTAGTCACATTAACCTTAATGGCTGTGCTGCA 300		
b 301 ATCGCTGGAGGACTACGGACTACGGCTCATCATCACCGAGTGTTGAACTGTGCCATC 360		
b 301 ATTGCGGGGGAGAACAGATAATGCAACAAATGTACAGATGTGTTAATTGACATT 360		
y 361 AACTCTAACAGAACCCCTCTAACCTAACCTCAAGCTGAGGTCTACTGTACCGCTGT 420		
y 361 AACTCTAACAGAACCCCTCTAACCTAACCTCAAGCTGAGGTCTACTGTACCGCTGT 420		
b 421 CCTGTCGAAAGCGGTGGAGGAGCTGACCGCTGGACGCTGGATCTGCTGCTG 480		
b 421 CGGTAACAGAGTTGTTGCTGATGGCTGCTGCTGCTGCTGCTGCTGCTG 480		
b 481 TGTAAGTGCTCTCTACGGGAAACCGCTCTGGACAGGGACTGACCCACTAGCTG 540		
b 481 TGTAAGTGCTCTCTACGGGAAACCGCTCTGGACAGGGACTGACCCACTAGCTG 540		
b 481 TGTAAGTGCTCTCTACGGGAAACCGCTCTGGACAGGGACTGACCCACTAGCTG 540		
b 601 AACACCCCTTCACCGAGTGTGAACTCTACTACAAAGGAAACAAGCG 600		
b 601 AACACCCCTTCACCGAGTGTGAACTCTACTACAAAGGAAACAAGCG 600		
b 601 AACACCCCTTCACCGAGTGTGAACTCTACTACAAAGGAAACAAGCG 600		
b 661 AACCTGGCTCTGGACGCTGGAAACAGGCTACCATACCCGCTCAGTGTACGTGCTG 720		
b 661 AACCTGGCTCTGGACGCTGGAAACAGGCTACCATACCCGCTCAGTGTACGTGCTG 720		
QY 721 TGTCCTGACGGAAACCTCTCTGCTGGAGTGTGAACTGGCTGAGAACACCGAG 780		
DDB 721 TGCCCGATGGFACTAYAAGTGTGTTGAGTAAATTCGTTGAGCACAAAACACTGAA 780		
QY 781 TGTCACAACTGGCTCTAACCTCAACTTCACAAACAAACGCTCTAACCTGAAAC 840		
DDB 781 TGTCACAACTGGCTCTAACCTCAACTTCACAAACAAACGCTCTAACCTGAAAC 840		
QY 841 TGTCACAACTGGCTCTAACCTCAACTTCACAAACAAACGCTCTAACCTGAAAC 900		
DDB 841 TGTCACAACTGGCTCTAACCTCAACTTCACAAACAAACGCTCTAACCTGAAAC 900		

	DT	18-DEC-2000	(first entry)
X	XX		
S	DE		
X	DE		
X	KW	Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;	
N	KW	white spot disease; freshwater fish; immune response; infection control;	
X	KW		
X	PCR		
X	PR		
X	PR	04-FEB-2000; 2000WO-US02962.	
X	PR	04-FEB-1999; 99US-0118634.	
X	PR	02-MAR-1999; 99US-012372.	
X	PR	17-MAR-1999; 99US-0124905.	
X	PR	27-APR-1999; 99US-0131121.	
XX	XX		
PA	(UYGE-)	UNIV GEORGIA RES FOUND INC.	
PA	(CORR)	CORNELL RES FOUND INC.	
PA	(CLAR/)	CLARK T G.	
PA	(DICK/)	DICKERSON H W.	
PA	(LINT/)	LIN T.	
XX	XX		
PI	Clark TG,	Dickerson HW,	
PI	Lin T;		
XX	XX		
WPI:	2000-506071/45.		
DR	DR		
PS	XX		
PS	PT	Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius	
PS	PT	multifiliis, useful for prophylaxis and treatment of Ichthyophthirius	
PS	PT	infection in fish -	
PS	PS		
PS	PS	Disclosure; Figure 12; 144pp; English.	
XX	XX		
This invention relates to novel i-antigen polypeptide sequences.			
CC	CC	i-antigens or immobilisation antigens common to a variety of	
CC	CC	hymenostomatid ciliates and their expression varies in response to	
CC	CC	environmental stimuli. This invention relates to i-antigens in	
CC	CC	Ichthyophthirius multifiliis, a protozoan which is an obligate parasite	
CC	CC	of freshwater fish causing ichthyophthiriasis or white spot disease. The	
CC	CC	invention includes two polypeptide and polynucleotide sequences for two	
CC	CC	i-antigens, of 48 and 55 kD. Also included in the invention are	
CC	CC	antibodies capable of binding to the nucleotide sequences and a method	
CC	CC	for identifying I. multifiliis serotypes using the nucleotide sequences.	
CC	CC	A composition (containing the i-antigen nucleotide) capable of eliciting	
CC	CC	an immune response in fish is useful for prophylaxis, treatment or for	
CC	CC	controlling I. multifiliis infection in fish. Polynucleotide or protein	
CC	CC	vaccines comprising a portion of the amplified product encoding an	
CC	CC	antigenic i-antigen polypeptide obtained is also useful for treating or	
CC	CC	preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,	
CC	CC	AAA97065 and AAA97089 represent i-antigen genes and gene	
CC	CC	fragments identified in the invention. Sequences AAA97043-A97064	
CC	CC	(excluding AAA97060) and AAA97071-A97088 represent primers used in the	
CC	CC	isolation of the i-antigen gene sequences. Sequences AAB25859-B5889 and	
CC	CC	AAB25893-B25906 represent i-antigen protein and peptide sequences.	
XX	XX		
Sequence 117 BP; 34 A; 30 C; 26 G; 27 T; 0 other;			
Query Match	7.5%	Score 105; DB 21; Length 117;	
Best Local Similarity	100.0%	Pred. No. 2.4 e-20;	
Matches 105; Conservative	0; Mismatches 0;	Indels 0; Gaps 0;	
Qy	1	ATGAGAACACATCTGGTGAATCTGTATCATCTCTGTCATCACAGATAAGTCT	
Db	13	ATGAGAACACATCTGGTGAATCTGTATCATCTCTGTCATCACAGATAAGTCT	
Qy	61	GCTTACTGTCTGTGGAAACGGACCAACACCGCTGGACAGGTG 105	
Db	73	GCTTAACTGTCTGTGGAAACGGACCAACACCGCTGGACAGGTG 117	
XX	XX		
Query Match	7.4%	Score 104; DB 21; Length 104;	
Best Local Similarity	100.0%	Pred. No. 4.4 e-20;	
Matches 104; Conservative	0; Mismatches 0;	Indels 0; Gaps 0;	
Qy	84	GACCACACGGCTGGACAGGTGACACTGGAAACCCCTGCTGAACCTGTCA 143	
Db	104	GACCPACACCGCTGGACAGGTGACACTGGAAACCCCTGCTGAACCTGTCA 45	
RESULT 10			
AAA97072/C	QY	144 GAAGAACCTACTACAACAAACGTGCTGTTGCTGGAG 187	
XX	DB	44 GAAGAACCTACTACAACAAACGTGCTGTTGCTGGAG 1	

